

Keiichi SUGIYAMA*: The Laboulbeniomyces of eastern Asia
(2) On eight species from Japan and Formosa
including two new species of *Rickia***

杉山恵一*: 東アジアのラブールベニア菌 (2) 日本および台湾産 8 種
(*Rickia* 2 新種をふくむ) について**

1) *Acallomyces gyrophaenae* (Thaxter) Tavares, Mycologia 65: 929 (1973).
Stigmatomyces gyrophaenae Thaxter, Mem. Amer. Acad. Arts Sci. 16: 165
(1931).

Host genus: *Gyrophaena* (Coleoptera: Staphylinidae)

Specimen examined: Nikko, Tochigi Pref., Japan, July 4, 1942 (Masao Kubota leg.), M. Ishikawa 858.

Distribution and host species: Japan (*Gyrophaena* sp.) and Jamaica (*G. parcipennis* Bernh.).

The diagnostic characters of the specimen collected in Japan coincide well with the original description and figures. The paired terminal antheridia and large inflated perithecium form the unique habitus of the present species. This fungus species was transferred to the present genus by Tavares (1973), because the arrangement of cells in the receptacle, the appendage, and the perithecial apex, as well as the basal and outer wall cells of the perithecium were similar to those in species of *Acallomyces*.

2) *Herpomyces periplanetae* Thaxter, Proc. Amer. Acad. Arts Sci. 38: 13
(1902); Mem. Amer. Acad. Arts Sci. 13: 285 (1908) et 16: 86 (1931).

Host genus: *Periplaneta* (Blattaria: Blattidae).

Specimens examined: Chihaya-chô, Toshima-ku, Tokyo, Japan, June 24, 1941 M. Ishikawa 555.

Distribution and known host species: China, Japan (*Periplaneta japonica* Karny; det. K. Kurosa); Africa; North, Middle and South America, West Indies; Europe (*Periplaneta orientalis* L.).

The present species is characterized by the well-developed shield-shaped

* Department of Biology, Faculty of Education, Shizuoka University, Shizuoka, 422. 静岡大学
教育学部生物学教室.

** Continued from Journ. Jap. Bot. 53: 20-26. 1978.

secondary receptacle. It is closely related to *H. stylopygae* described by Spe-gazzini (1917). However, *H. stylopygae* is readily distinguished from *H. periplanetae* by the blackish base of the secondary receptacle. Richard and Smith (1954) indicated that there was a difference in host preference between these two species through a series of cross-inoculation experiments.

3) **Kainomyces isomali** Thaxter, Proc. Amer. Acad. Arts Sci. 37: 45 (1901) et Mem. Amer. Acad. Arts Sci. 13: 445 (1908) et 16: 364 (1931).

Host genera: *Eleusis*, *Isomalus* and *Maseochara*.

Specimens examined: Sun Moon Lake, Nantou County, Formosa, August 7, 1976, K. Sugiyama 188 and 1901.

Distribution and known host species: Formosa (*Eleusis kraatzi* Fauvel; det. Y. Shibata), the Phillipines, Sumatra (*Eleusis kraatzi* Fauvel and *Maseochara sumatrensis* Bernh.), Borneo; Africa (*Eleusis schwabi* Bernh. and *Isomalus conradti* Faubel).

Two species have so far been known in the genus *Kainomyces*. The present species is distinguished from the other species, *K. alutellae* Thaxter, by the presence of more than two perithecia on a receptacle.

4) **Laboulbenia tachys** Thaxter, Proc. Amer. Acad. Arts Sci. 38: 38 (1902) Mem. Amer. Acad. Arts Sci. 13: 360 (1908); Sugiyama, Ginkgoana 2: 65 (1973). Host genus: *Tachys* (Coleoptera: Carabidae).

Specimens examined: Formosa (exact locality is unknown), June 23, 1941 (Yoshio Yano leg.), M. Ishikawa 660, 681, 682, 683, 685, 686, 687, 689, 690, 691, 692, 693, 694, 695 and 696.

Distribution and host species: Japan (*Tachy laetificus* Bates), Formosa (*T. klugii* Nietner); U.S.A. (*T. incurvus* Say); Europe (*T. nanus* Gyll.).

This fungus species is very variable in length, being caused by the degree of elongation of the basal and subbasal layers of the receptacle. The main feature of this species is the basal cell of the posterior branch of the receptacle, which forms a distinct prominence externally.

5). **Monoicomycetes leptochiri** Thaxter, Proc. Amer. Acad. Arts Sci. 41: 304 (1905) et Mem. Amer. Acad. Arts Sci. 13: 272 (1908) et 16: 45 (1931); Tera-da, Hikobia 8: 124 (1977).

Host genera: *Borolinus*, *Leptochirus* and *Priochirus* (Coleoptera: Staphylinidae).

Specimen examined: Fenchihu, Chiayi County, Formosa, August 22, 1968

(Masaru Nishikawa leg.), K. Sugiyama 638.

Distribution and known host species: Japan (*Borolinus bicornis* Nakane et Sawada) Formosa (*Priochirus* sp.), the Philippines, Sumatra and Java (*Leptochirus unicolor* Cast. and *L. javanicus* Cast.).

This species is quite different from other members of *Monoicomycetes* by having blackish filamentous receptacle. It is, on the other hand, similar to some species of the genus *Rhachomyces*, from which it is easily distinguished by the presence of compound antheridia and terminal perithecia as well as by the lack of bristle-like appendages.

6) ***Rickia coptengalis*** Thaxter, Mem. Amer. Acad. Arts Sci. 15: 462 (1926).

Host genera: *Coptengis* and *Episcapha* (Coleoptera: Erotylidae).

Specimens examined: Lishan, Taichung County, Formosa, August 14, 1974, K. Sugiyama 1729 and 1730.

Distribution and host species: Formosa (*Episcapha takasagona* Chûjô; det. T. Nakane), India (*Coptengis shepardi* Pasc.).

The main features of this fungus species are the stout triseriate receptacle with numerous antheridia formed densely both on the anterior and posterior sides and the dark perithecium united to the receptacle both on the anterior and posterior sides. This species is similar to *R. episcaphae* Thaxter in the gross morphology, but they are distinguished from each other by the following characters: in *R. coptengalis*, the posterior series of cells of the receptacle ends a little below the top of the perithecium and numerous antheridia are formed, while in *R. episcaphae*, one-half of the posterior side of the perithecium is free from the receptacle and antheridia are rather scanty.

7) ***Rickia oceana*** Sugiyama sp. nov. (Fig. 1)

Thalli hyalini, partim atri, 200-250 μm longi, ex receptaculis biseriariis simplicibus et peritheciis solitariis et 1-2 antheridiis et appendicibus longissimis numerosis constantes. Appendices atrae simplices cylindraceae, 90-100 μm longae, 4.8-5.3 μm crassae, distalibus saepe inflatis hyalinis.

Thalli hyaline, partly blackish and opaque, composed of receptacles, perithecia, antheridia and appendages, 200-250 μm long. Receptacles hyaline except for the blackish foot, leaf-like, slender, composed of a basal cell and two longitudinal series of two-celled layers, 180-250 μm long, 32.5-50.0 μm wide; the basal cell forming basally a blackish foot, 35-45 μm long, 20-29 μm thick;

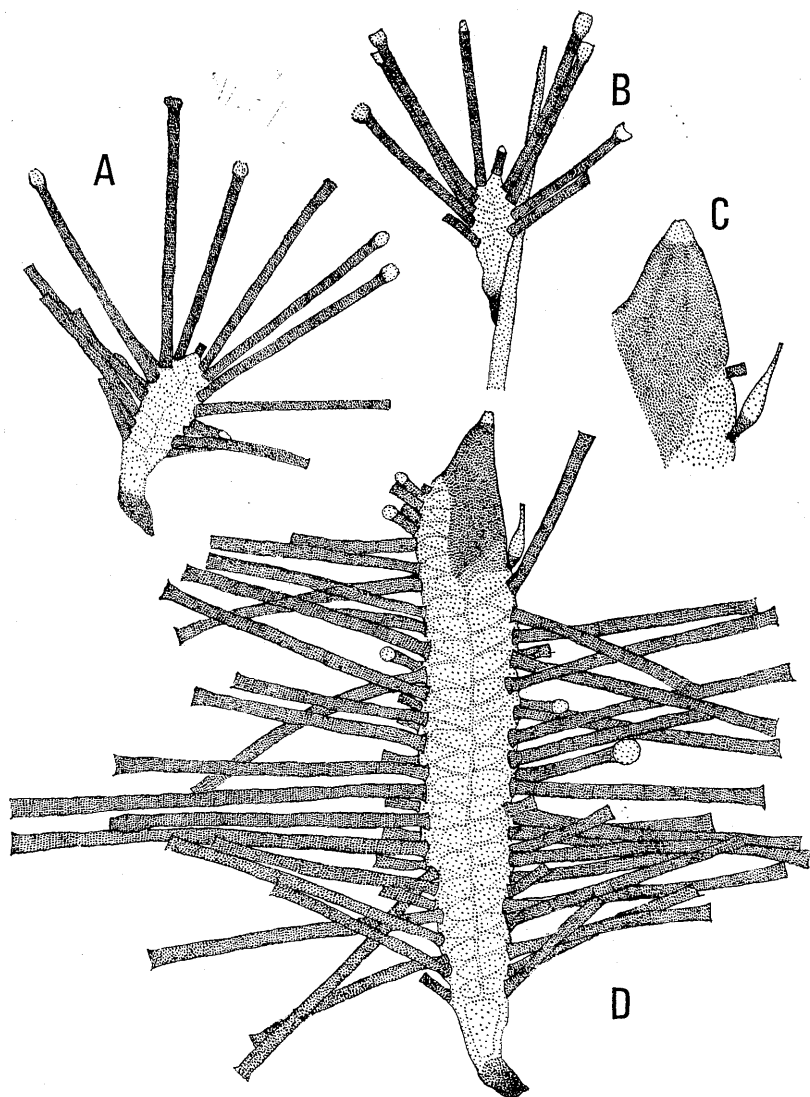


Fig. 1. *Rickia oceani* Sugiya. A. Young plant. $\times 315$. B. Young plant on a seta of the host. $\times 290$. C. Perithecium and compound antheridium. $\times 500$. D. Mature plant. K-S-1810. $\times 340$.

the anterior series consisting of 10-18 superposed two-celled layers, forming terminally a solitary perithecium, 160-201 μm long; each layer more or less rectangular and composed of two subtriangular cells, the outer and inner cells; the posterior series comprising 17-26 superposed layers, 185-250 μm long, each layer similar to that of the anterior series, 5-6 distal layers united to the perithecium on lateral side; the outer cells of each layer of both anterior and posterior series forming externally 1-3 appendages. Perithecia blackish, subconical, 55-68 μm long, 25.0-30.5 μm thick; apex more or less pointed, hyaline. Antheridia cylindrical, uniformly becoming thinner towards the apex, constricted at the base, formed at the top of the anterior series of the receptacle, one or rarely two in number, 24-25 μm long, 5-6 μm thick. Appendages blackish, opaque, cylindrical, 90-100 μm long, 4.8-5.3 μm thick; the apex often inflated to form a hyaline round body.

Host species: *Salganea* sp. (Blattaria: Panesthidae) (det. K. Kurosa).

Specimens examined: More than 100 specimens were examined. They were found invariably attached to the setae of meso- and metasternal plates of host insects, which were collected by Jun Okuma at Hatsuno, Amami-Oshima Island, Kagoshima Pref., Japan, on May 11, 1976. The serial numbers of the specimens are as follows: K. Sugiyama 1809 (type, TNS), 1810, 1811, 1812, 1813, 1814, etc.

Distribution: Endemic to Japan.

This is one of the most striking species of the genus *Rickia* and is easily distinguished from other members of the genus by the unique appendages. The other unique characters of this species are the biseriata receptacle and the compound antheridium formed usually solitarily at the top of the anterior series of cells of the receptacle.

8) ***Rickia wulaiensis*** Sugiyama sp. nov. (Fig. 2)

Thalli hyalini 143-233 μm longi, 17-25 μm lati. Receptacula biseriata, 5-6 cellulis terminalibus seriei posterioris a latere perithecio affigantes. Perithecia obclavata, 40-60 μm longa, 15-25 μm crassa. Antheridia hyalina, 15-18 μm longa, 5 μm crassa. Appendicula hyalina, 10-50 μm longa, 5 μm crassa; septis basilaribus infuscatis.

Thalli hyaline, leaf-like to filamentous, 143-233 μm long, 17-25 μm wide. Receptacles biseriata, composed of basal and distal portions, 140-230 μm long, 17-25 μm wide; the basal portion comprising 1-2 cells, tapering gradually

towards the foot; the distal portion consisting of numerous cells arranged in two longitudinal series, the anterior and posterior series; the anterior series 100–170 μm long, composed of 9–19 superposed cells, forming terminally a perithecium; the posterior series 140–230 μm long, composed of 15–23 cells, 4–6 distal cells united to the perithecium on lateral side. Perithecia hyaline, obclavate, 40–60 μm long, 15–25 μm thick, completely free from the receptacle on the anterior side; apex more or less pointed. Compound antheridia hyaline, cylindrical, tapering towards the apex, constricted and blackened basally, 15–18 μm long, 5 μm thick.

Appendages hyaline, cylindrical, constricted and blackened basally, 10–50 μm long, 5 μm thick.

Host species: *Priochirus* (*Tricanthochirus*) *tonkinensis* Bernh. (Coleoptera: Staphylinidae) (det. Y. Sibata).

Specimens examined: Wulai, Taipei County, Formosa, August 13, 1976, K. Sugiyama 1856 (type, TNS), 1848, 1849, 1851, 1854, 1855, 1858, 1859, 1860, 1865 and 1866

This species is characterized by the biserrate, hyaline receptacle and by the perithecium which is completely free from the receptacle on the anterior side. *R. apiculifera* Thaxter on passalid insects resembles this species in its simple form, but it often has variously branched thallus.

Literature cited

Richard, A. and M. Smith, Bot. Gaz. 116: 195–

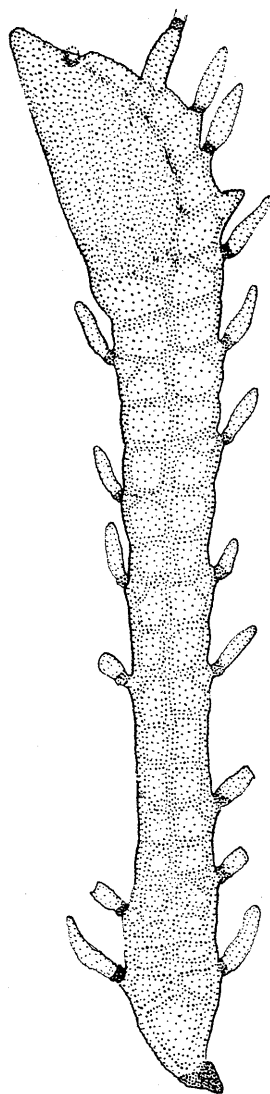


Fig. 2. Mature plant of *Rickia wulaiensis* Sugiyama. K-S-1866. $\times 750$.

198 (1954). Spegazzini, C., Ann. Mus. nac. Hist. nat, Buenos Aires 29: 445-688 (1917). Tavares, I., Mycologia 65: 929-934 (1973). Terada, K., Hiko-bia 8: 124-131 (1977). Thaxter, R., Proc. Amer. Acad. Arts Sci. 37: 19-45 (1901). —, ibid. 38: 7-57 (1902). —, ibid. 41: 301-318 (1905). —, Mem. Amer. Acad. Arts Sci. 13: 217-469 (1908). —, ibid. 15: 427-580 (1926). —, ibid. 16: 1-435 (1931).

* * * *

日本及び台湾新産のラプールベニア菌 6 属 8 種を報告した。*Rickia* 属の 2 新種を含んでいる。

1) *Acallomyces gyrophaena* (Thaxter) Tavares ヒラタキノコハネカクシ属 (*Gyrophaena*) の 1 種から発見された。全長 203 μm , 比較的小型な托と、大きくふくれた被子器と、托の先端の 2 個の造精器によって特徴づけられる。

2) *Herpomyces periplanetae* Thaxter ヤマトゴキブリ (*Periplaneta japonica* Karny) から採集された。大型、盤状の第二次托により特徴づけられる。

3) *Kainomyces isomali* Thaxter 台湾産ウスバハネカクシの 1 種 (*Eleusis kratzi* Fauvel) から採集された。本属には 2 種が含まれるが、本種は他の一種 *K. alutellae* Thaxter が被子器を 1 個生ずるのに対して、2 個以上を生ずることにより区別される。

4) *Laboulbenia tachys* Thaxter 台湾産コミズギワゴミムシ (*Tachys klugii klugii* Nietner) から発見された。全長 180-490 μm と変異に富むが、これは托の第 1, 第 2 層の長さの変異による。本菌は托の後枝の基部細胞が後方に突出することにより特徴づけられる。

5) *Monoicomyces leptochiri* Thaxter 台湾産クロツヤハネカクシ属の 1 種 (*Priochirus* sp.) から発見された。長い糸状の、黒色部の多い托により特徴づけられる。

6) *Rickia coptengalis* Thaxter 台湾産オオキノコムシの 1 種 (*Episcapha takasagona* Chūjō) から発見された。近似の *R. episcapha* Thaxter とは被子器の両側が先端近くまで托の細胞と合体していることで区別される。

7) *Rickia oceana* Sugiyama (新種) 奄美大島で採集されたオオゴキブリの 1 種 (*Salganea* sp.) の胸部の剛毛に着生しているのが発見された。特異な附属体により、他のあらゆる種から区別される。

8) *Rickia wulaiensis* Sugiyama (新種) 台湾産クロツヤハネカクシの 1 種 (*Priochirus tonkinensis* Bernh.) より発見された。本属は大部分の種で托は 1 縦列の細胞から成り、本種のように 2 縦列のものは稀である。